the user touches any one of the input and output units **151** and **152**, an input signal from the input unit serving as the touch sensor formed on each of the sides is inputted to the control unit of the information input and output device **100**. The control unit of the information input and output device **100** transmits a volume control request based on input information to the audio player **123** via the communicating unit. The audio player **123** executes the volume control in response to this request.

[**0051**] As described above, the acceleration sensor (gyro) is built in the information input and output device **100**. The user is capable of, for example, operating an external apparatus or updating displayed information on the basis of tilt information of the information input and output device **100** without touching the input and output units **151** and **152**. In the example shown in FIG. **4**, when the user rotates (tilts) the information input and output device **100** to, for example, the input and output unit **152** side, the control unit of the information input and output device **100** detects, on the basis of tilt information from the acceleration sensor (gyro), that the information input and output device **100** has rotated to the input and output unit **152** side. The control unit transmits, on the basis of this detection information, a request for turning up the volume to the audio player **123** via the communicating unit. On the other hand, when the user rotates (tilts) the information input and output device **100** to the input and output unit **151** side, the control unit of the information input and output device **100** detects, on the basis of tilt information from the acceleration sensor (gyro), that the information input and output device **100** has rotated to the input and output unit **151** side. The control unit transmits, on the basis of this detection information, a request for turning down the volume to the audio player **123** via the communicating unit.

[**0052**] An example of a structure of the information input and output device **100** according to the embodiment will be explained with reference to FIG. **5**. As shown in FIG. **5**, the information input and output device **100** according to the embodiment has a control unit **201**, plural (n) input and output units **211-1** to **211-*n*** set on respective sides of a polyhedron, a communicating unit **221**, a storing unit **222**, and an acceleration sensor (gyro) **223**.

[**0053**] The control unit **201** is a microcomputer having a CPU and the like. The control unit **201** executes various kinds of data processing in accordance with programs stored in the storing unit **222**. The input and output units **211-1** to **211-*n*** are plural (n) input and output units set on the respective sides of the polyhedron. As described above, the input and output units **211-1** to **211-*n*** are formed by liquid crystal displays having touch sensors. The storing unit **222** is used as a storing unit such as a storage area for various data processing programs and a work area applied to data processing in the control unit **201**. The storing unit **222** is formed by a RAM, a ROM, an HDD, or the like.

[**0054**] The acceleration sensor (gyro) **223** detects accelerations corresponding to three orthogonal axes, i.e., an X axis, a Y axis, and a Z axis, respectively and inputs detection data to the control unit **201**. The control unit **201** discriminates, on the basis of the input from the acceleration sensor (gyro) **223**, for example, which of the input and output units **211-1** to **211-*n*** forming the polyhedron is located on an uppermost side. The control unit **201** displays operation information of the user on the input and output unit located on the uppermost side and performs setting for allowing the user to perform input. Alternatively, the control unit **201** performs display of the menu information and the operation information explained above with reference to FIGS. **2** to **4** on plural sides including the input and output unit located on the uppermost side. When user input is performed from these input and output units, the control unit **201** receives input information and performs necessary processing, for example, update of the displayed information and output of control information to an external apparatus.

[**0055**] Plural examples of use of the information input and output device **100** according to the embodiment will be explained with reference to FIG. **6** and the subsequent figures. (A) in FIG. **6** is a form in which information display is executed by applying one belt-shaped line of a polyhedron thereto. This example of display corresponds to the example of display explained with reference to FIGS. **2** and **3**.

[**0056**] When such a belt-shaped display area is used, a belt-shaped line defined by a double line **251** shown in a polygon in (A**1**) is defined as an information display area. For example, menus for apparatus selection or function selection or operation information is displayed on these input and output units.

[**0057**] When such display processing is performed, as shown in (A**2**) in FIG. **6**, the surface of the polygon are revolved. The user holds the information input and output device **100** with a hand and rotates the information input and output device **100** to observe displayed information on sides forming the respective input and output units. In this case, the input information of the acceleration sensor **223** explained with reference to FIG. **5** is inputted to the control unit **201**. The control unit **201** changes the displayed information according to a rotation state. For example, when eight surfaces are formed over the surface of the polygon, it is possible to display eight kinds of icons at a time. When it is detected that the information input and output device **100** is rotated to revolve once by operation of the user, the control unit **201** executes update processing for the displayed information. According to this displayed information update processing, it is possible to display different data on the same input and output unit every time the information input and output device **100** is rotated. As a result, it is possible to execute unlimited different kinds of information display.

[**0058**] (B) in FIG. **6** is a form in which information display is executed by applying plural adjacent sides set on a polyhedron thereto. In this example of display, five sides are used as display areas. A pentagonal area including five sides forming input and output units defined by a double line **252** shown in a polygon in (B**1**) is selected as an information display area. For example, menus for apparatus selection or function selection or operation information is displayed on these input and output units. As shown in (B**2**) in FIG. **6**, five display surfaces are used as display areas for information.

[**0059**] In this example of display, as in the example described above, for example, when the information input and output device **100** is rotated according to operation by the user with a center point **253** shown in (B**2**) in FIG. **6** as a center axis and it is detected that the information input and output device **100** has revolved once, the control unit **201** is capable of executing update processing for the displayed